



# Volunteer Lake Assessment Program Individual Lake Reports

## COBBETTS POND, WINDHAM, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	2,048	Max. Depth (m):	19.2	Flushing Rate (yr <sup>-1</sup> )	0.4
Surface Area (Ac.):	345	Mean Depth (m):	5.2	P Retention Coef:	0.8
Shore Length (m):	7,400	Volume (m <sup>3</sup> ):	7,208,000	Elevation (ft):	177

### TROPHIC CLASSIFICATION

Year	Trophic class
1986	MESOTROPHIC
2003	EUTROPHIC

### KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at [www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm](http://www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm)

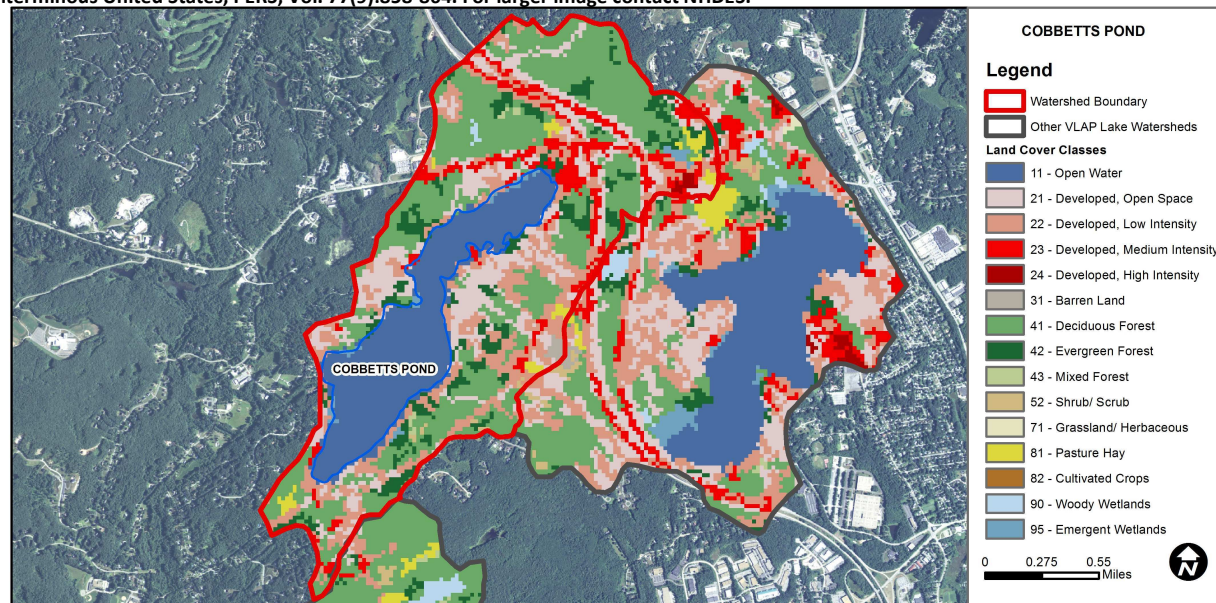
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen saturation	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Cautionary	There are no geometric means and there is one single sample exceedance. More data needed.
	Cyanobacteria hepatotoxin	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

COBBETTS POND - TOWN BEACH	Escherichia coli	Bad	There are >=1 exceedance(s) of the geometric mean and/or >=2 single sample criterion exceedances. One or more exceedance is >2X criteria.
COBBETTS POND - DUNKAN BEACH	Escherichia coli	No Data	No data for this parameter.
COBBETTS POND - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	19.5	Barren Land	0.34	Grassland/Herbaceous	0
Developed-Open Space	14.9	Deciduous Forest	31.57	Pasture Hay	1.44
Developed-Low Intensity	15	Evergreen Forest	7.92	Cultivated Crops	0
Developed-Medium Intensity	7.25	Mixed Forest	0.22	Woody Wetlands	0.14
Developed-High Intensity	0.27	Shrub-Scrub	0.22	Emergent Wetlands	0.9



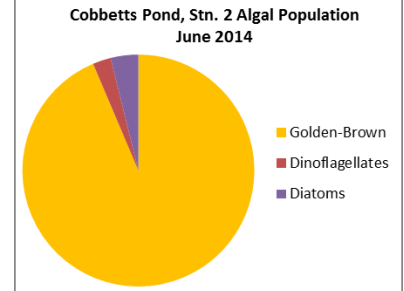
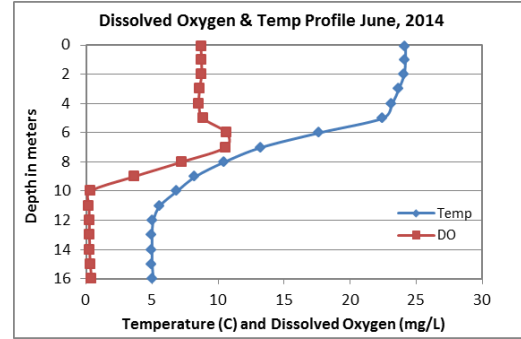
## VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

### COBBETTS POND, STN. 2, WINDHAM

### 2014 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were elevated in June and much greater than the state median. Historical trend analysis indicates significantly increasing (worsening) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride remained greatly elevated in the lake and tributaries. Deep spot conductivity and chloride were not measured in 2014 due to equipment malfunction; we apologize for this inconvenience. Historical trend analysis, through 2013, indicate significantly increasing (worsening) epilimnetic (upper water layer) conductivity since monitoring began. The chloride level at Connie's Brook was equal to the state chronic chloride standard indicating potential toxicity to aquatic life.
- ◆ **E. COLI:** E. coli levels at Community Beach were greater than the state standard of 88 cts/100 mL for public beaches on the June sampling event. A recent storm event and stormwater runoff may have contributed to the elevated levels.
- ◆ **TOTAL PHOSPHORUS:** Phosphorus was measured at the deep spot utilizing an integrated tube from 8 meters to the surface. The result was representative of epilimnetic phosphorus levels and was utilized for trend analysis. Epilimnetic phosphorus levels increased slightly from 2013 and historical trend analysis indicates significantly increasing (worsening) epilimnetic phosphorus since monitoring began. Phosphorus levels at Community Beach and Walkey Rd. were slightly elevated and a recent storm event could have contributed to the phosphorus. Phosphorus levels at Herons Cove were greatly elevated and the turbidity was also elevated indicating potential erosion of sediments upstream.
- ◆ **TRANSPARENCY:** Transparency improved greatly in 2014 in June and was the best recorded since 2011 which is great news. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began. We hope to see a continued improvement in years to come.
- ◆ **TURBIDITY:** Deep spot turbidity was not measured due to equipment malfunction; we apologize for the inconvenience. Turbidity was slightly elevated at Community Beach and Connie's Bk., was moderately elevated at Castleton Culvert and the Main Inlet, and was greatly elevated at Herons Cove. The recent storm event and stormwater runoff may have caused a spike in turbidity at these stations.
- ◆ **pH:** Deep spot pH was not measured due to equipment malfunction; we apologize for the inconvenience. Tributary pH levels were sufficient to support aquatic life. Historical epilimnetic pH trend analysis (through 2013) indicates a stable pH with moderate variability between years.
- ◆ **RECOMMENDED ACTIONS:** Continue to implement stormwater best management practices in the watershed to improve water quality. Continue working with and educating local officials, companies, and residents on utilizing best practices for winter de-icing and encourage the obtainment of a NH Voluntary Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification program. Increase monitoring frequency to better assess seasonal and historical water quality trends. Keep up the great work!



**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** > 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** between 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

Station Name	Table 1. 2014 Average Water Quality Data for COBBETTS POND						
	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.	pH
	ug/l	mg/l	uS/cm	#/100ml	ug/l	NVS VS	
Epilimnion	7.69					4.13 5.15	
Castleton Culvert		150	893.0		12		7.56 6.87
Community Beach			339.0	220	21		2.93 7.40
Connie's Brook		230	1057.0		9		0.68 7.33
Connie's Brook at 111		39	492.0		15		2.85 7.44
Dinsmore West		120	893.0		7		1.02 7.64
Herons Cove		130	879.0		84		45.1 7.73
Main Inlet Castleton Brook		170	903.0		12		5.52 6.95
Walkey Rd		60	378.0		22		0.34 6.67

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Worsening	Data significantly increasing.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Worsening	Data significantly increasing.

